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The subsaharan species of *Acathrito* Lyneborg, 1983 (Diptera: Therevidae: Phycinae)

by

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ABSTRACT

The genus *Acathrito* is rediagnosed and discussed. A key is provided to five subsaharan species, and the interspecific relationships of these are outlined. Three new species are described, viz., *socotrensis*, *angolensis*, and *namibiensis*. *A. kroeberi* is recorded from Mozambique and *A. lindneri* from Natal.

INTRODUCTION

Acathrito Lyneborg, 1983 was created to contain a number of small phycine species formerly placed in *Ruppellia* Wiedemann, 1830 or *Actorthia* Kröber, 1912 (cf. Lyneborg, 1980). The genus seems distributed throughout the drier parts of the Afrotropical region, and also occurs in the southern Palaearctic region and in the western part of the Oriental region (NW India and Sri Lanka).

Only two species, *A. kroeberi* (Lindner, 1955) and *A. lindneri* Lyneborg, 1983 have so far been recorded from the Afrotropical region. Three more species, *angolensis*, *namibiensis* and *socotrensis* are described in the following pages. Additional material in imperfect condition or representing only the female sex indicates the existence of several additional species.

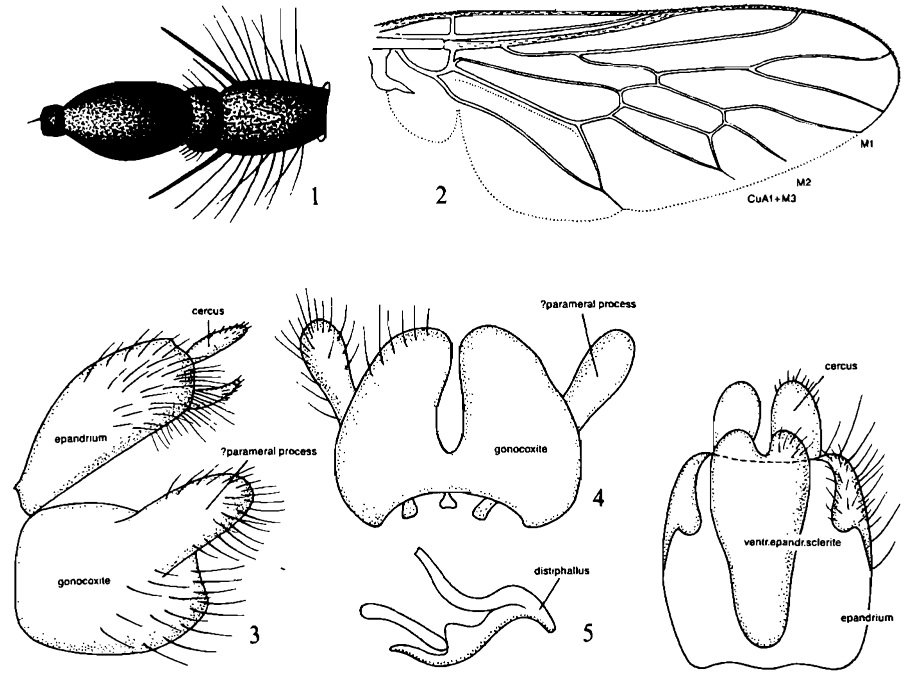
TAXONOMY

Genus *Acathrito* Lyneborg

Acathrito Lyneborg, 1983: 198. Type-species *A. lindneri* Lyneborg, 1983, by original designation.

A full generic diagnosis is given by Lyneborg (1983). The main diagnostic character for *Acathrito* is found in the venation (Fig. 2), where the ambient vein terminates at tip of M_1, and at the same time M_2 is abbreviated and does not reach wing-margin; often CuA_1+M_3 is also abbreviated. This character state is a further step in the development of the character state found in *Ruppellia*, where the ambient vein stops at vein M_2, which always reaches hind wing-margin (cf. Lyneborg, 1988: fig. 1). In other phycine genera of the region the ambient vein reaches A_1, and no veins are abbreviated (cf. Lyneborg, 1983: figs 9–11).

In male genital characteristics, *Acathrito* seems to represent a more plesiomorphic state than does *Ruppellia*, as the distiphallus (Fig. 5) is short and downcurved, as is usual in Phycinae, and also is less dominant compared to the other elements of the aedeagus. The presence of a distinct thumb-shaped process on the gonocoxite (Figs 3–4) also represents in my opinion a clearly plesiomorphic condition, as this process probably represents the parameral process, which usually has a



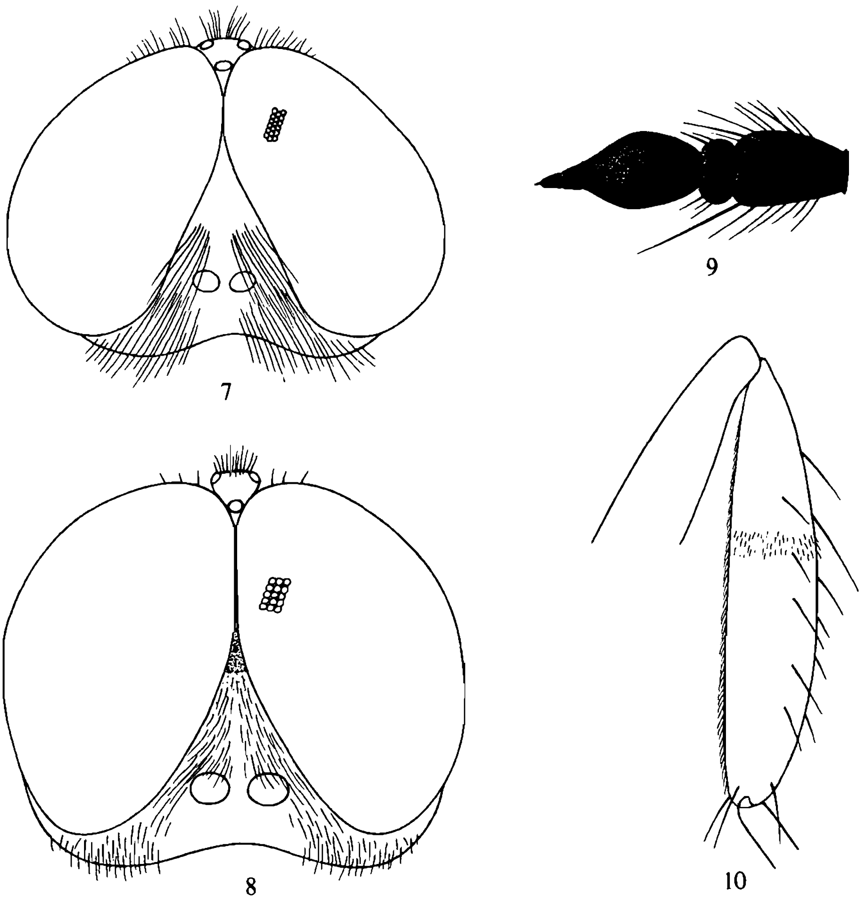
Figs 1–6. Diagnostic characters for *Acathrito*; all of *A. lindneri* Lyneborg. 1. Antenna in lateral view. 2. Wing, note termination of ambient vein at M_1. 3. Male genitalia in lateral view, note presence of supposed parameral process. 4. Gonocoxites in ventral view, note absence of hypandrium. 5. Aedeagus in lateral view, note short distiphallus. 6. Epandrium, cerci and ventral epandrial sclerite, ventral view. Scale: 1 mm for 2, 0,5 mm for the rest.

position on the dorsal edge of the gonocoxite. In *Ruppellia* the parameral process is absent (cf. Lyneborg, 1989: fig. 2).

A natural group is formed by *A. kroeberi*, *lindneri*, *angolensis*, and *namibiensis*, as in these four species the proboscis is strongly reduced and probably non-functional, and at the same time the flagellar style is obviously one-segmented (Fig. 7). The fifth species, *socotrensis*, is in these respects closer to the more usual condition, where proboscis is of normal length, reaching about the level of the antennal bases, and flagellar style (Fig. 7) is bisegmented; both these plesiomorphic character states are also present in *Ruppellia*.

The internal hierarchy in the group (ie. *Acathrito* s.str. if a subgeneric division is used) seems fairly clear. The two western species, *angolensis* and *namibiensis*, are probably sister-species, and together are characterised by two obvious synapomorphies: the incrassate female fore tibia (Fig. 10), and the enlarged male facets (Fig. 8). Similarly the two eastern species, *kroeberi* and *lindneri* seem to be sister-species, being held together by several synapomorphic characters (see later).

Nothing is known about the life-history of any *Acathrito*. The species seem to prefer open, sandy habitats at coastal as well as inland localities. Only one species, *lindneri*, appears to have been locally abundant (at Kitani Lodge in the Tsavo National Park, Kenya). *A. kroeberi* is known as a member of the insect fauna of



Figs 7–10. *Acathrito* species. 7. Male head of *Acathrito lindneri* Lyneborg., holotype, frontal view. 8. Male head of *A. angolensis* sp. n., holotype, frontal view. 9. Male antenna of *A. socotrensis* sp. n., holotype, lateral view. 10. Female front leg of *A. namibiensis* sp. n., paratype, anterior view.

sandy coastal beaches at Mombasa (Kenya) and Dar-es-Salaam (Tanzania) (Lindner 1955 1962). As will appear from the lists of 'Material examined' all *Acathrito* species are either rare, local, or difficult to collect.

Key to subsaharan species of *Acathrito*

1 Proboscis of normal length, reaching at least to level of antennal bases. Flagellar style bisegmented, about half as long as first flagellomere (Fig. 9). Knob of halter black .... socotrensis sp. n.

— Proboscis greatly reduced, and nowhere near reaching level of antennal bases. Flagellar style unisegmented, about one-quarter as long as first flagellomere (Fig. 7). Knob of halter blackish or whitish............................ 2

2 Hind femur with about 4 anteroventral setae. CuA$_1$+M$_3$ reaches wing-margin. 4–5 notopleurals. ♀: fore tibia incrassate (Fig. 10)...................... 3

— Hind femur without anteroventral setae. CuA_1+M_3 not reaching wing-margin (Fig. 2). 3 notopleurals. ♀: fore tibia normal 4

3 Halter brown-black. ♂: upper facets strongly enlarged; area of enlarged facets not elevated .... namibiensis sp. n.

— Halter white-yellow. ♂: upper facets moderately strongly enlarged (Fig. 8); area of enlarged facets elevated .... angolensis sp. n.

4 Pile on head and mesonotum mainly blackish, only whitish on face. Fore tibia with 2 posterodorsal setae which are about as long as tibial width. ♂: abdomen entirely blackish .... kroeberi (Lindner)

— Pile on head and mesonotum whitish; postocular setae may be blackish. Fore tibia with 3 posterodorsal setae which are shorter than tibial width. ♂: abdomen often more or less yellowish laterally.......... lindneri Lyneborg

Acathrito socotrensis sp. n.

Fig. 9

Etymology. Named after the island of Socotra.

Description, ♂.

Total length. 5,7 mm.

Head (Fig. 9). Ratio of height:width in frontal view is 42:60. Eyes touching for a distance equal to height of ocellar triangle. Upper facets only slightly enlarged, and not elevated. Frontal triangle large, lower part distinctly raised in profile. Whole head black, covered by moderately thick greyish tomentum, but lower part of frontal triangle more shiny. Pile on frons long and blackish, not reaching below antennal bases; hairs about as long as length of scape. Pile of occiput and gena blackish. Ratio of antennal length:depth of head 21:35. Ratios of antennal segments as follows: scape 7:5, pedicellus 2:5, first flagellomere 8:5, style 4. Antenna blackish; scape with moderately long blackish pile. Proboscis of normal shape, reaching slightly beyond level of antennal bases. Palpi distinctly shorter than proboscis.

Thorax. Mesonotal chaetation: np = 4, sa = 1, pa = 1, dc = 1, sc = 1. Whole thorax including scutellum black, thinly greyish tomentose. Pile black, hairs on disc longer than half length of dorsocentral setae.

Wings. Proximal section of M_1 only gently curved. M_2 and CuA_1+M_3 abbreviated, separated from wing-margin by a distance equal to length of r-m cross-vein. Uniform grey-brown, more intensively brownish along anterior margin. Halter black.

Legs (hind legs missing). Fore and mid femora without anteroventral setae, only with sparse short dark pile on posterior surface. Entirely black.

Abdomen. Entirely black and hardly tomentose; only segment 2 with a whitish hindmargin. Pile entirely blackish.

♀. Unknown.

Material examined. SOCOTRA: 1♂ (holotype), Hamadara, 400 m, 4.iv.1967, K. Guichard (BMNH [1967–455]).

Distribution. Probably endemic to Socotra.

Acathrito angolensis sp. n.

Figs 8, 11

Etymology. Named after the country of Angola.

Description, ♂.
Total length. 6,2 mm.

Head (Fig. 8). Ratio of height:width in frontal view is 57:70. Eyes touching on frons for a distance 2,6 times height of ocellar triangle. Part of eyes above level of antennal bases elevated compared to lower and hind parts of eyes, and facets on elevated parts moderately enlarged. Frontal triangle very slightly raised in profile. Whole head black and covered by greyish tomentum, only extreme upper corner of frontal triangle somewhat shiny. Pile of frons long and blackish, hairs being distributed to below antennal bases. Also pile of occiput and genae blackish or dark brownish. Ratio of antennal length:depth of head is 20:40. Ratio of antennal segments as follows: scape 7:4, pedicellus 3:4, first flagellomere 8:5, style 2. Antenna brown-black; scape with rather long blackish pile. Palpi and proboscis only reaching half-way to level of antennal bases.

Thorax. Mesonotal chaetation: np=5, sa=1, pa=1, dc=1, sc=1. Disc of mesonotum brown-black, rather shiny, and only indistinctly striped. Pile on disc erect, rather sparse, black; hairs longer than half length of dorsocentral setae. Pleura black, greyish tomentose; pile on meso- and sternopleura blackish. Scutellum as disc of mesonotum.

Wings. Proximal section of M_1 forms a strong curve. Only M_2 abbreviated, as CuA_1+M_3 reaches hind wing-margin. Colour rather intensive greyish brown, especially in broad ill-marked streaks along the veins. Halter bright white-yellow.

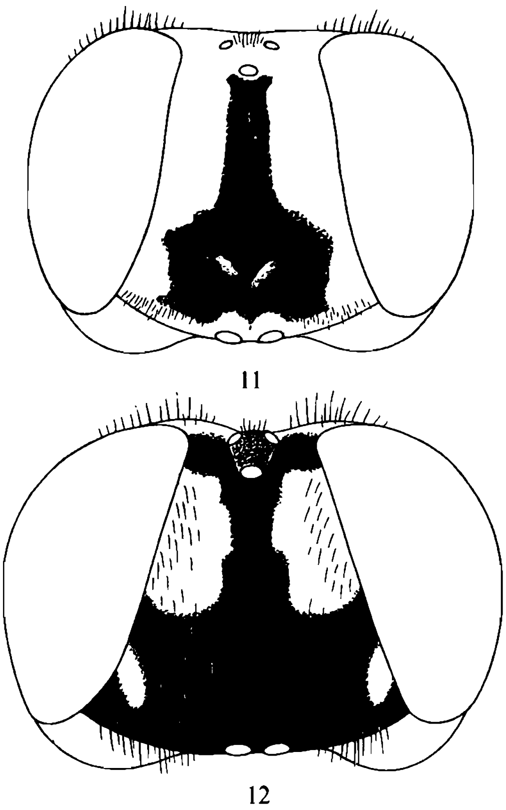
Legs. Entirely black. Fore and mid femora without anteroventral setae, with moderately long dark pile on posterior surface. Hind femur with 4 rather weak anteroventral setae. Fore tibia normal.

Abdomen. Black, slightly grey-brown tomentose; segments 1–3 with marked whitish hindmargins; pile long and blackish.

Terminalia. Agree closely with those of the type-species (Figs 3–6), except that gonocoxal projection (= parameral process; see introduction) is longer and narrower.

♀.
Total length. 6,4 mm.

Head (Fig. 11). Ratio of height:width in frontal view is 48:60. Frons rather narrow (compared with *namibiensis*), width at anterior ocellus about 0,42 times distance between vertex and antennal bases. Lower frons distinctly raised in profile. Lower half of frons occupied by large, pentagonal, shiny black callus, which is clearly separated by tomentose areas from eye-margins, and extends to anterior ocellus as a parallel-sided callus occupying about mid-third of upper half of frons. Lateral thirds of upper frons white-grey tomentose, and connected with tomentose areas lateral of lower callus. Rest of head white-grey tomentose. Upper occiput with numerous short, strong postocular and occipital setae. Pile on lower occiput and



Figs 11–12. *Acathrito* species. Frons of female paratypes, frontal view. 11. *A. angolensis* sp. n. 12. *A. namibiensis* sp. n.

genae whitish. Antenna and proboscis as described for ♂, but pile on scape much shorter.

Thorax. Chaetation as in ♂, but an additional pair of much shorter dc setae in front of suture. Disc of mesonotum more distinctly striped than in ♂, pattern composed of a pair of brownish bands and a narrow brownish mid-stripe, these elements being confluent posteriorly. Rest of mesonotum rather intensively greyish tomentose. Pile on disc black as in ♂, but hairs much shorter, only about 10% as long as dorsocentral setae. Pile on meso- and sternopleura whitish.

Wings. As described for ♂.

Legs. Entirely black. Femoral chaetation as in ♂. Fore tibia incrassate, tibial width equalling femoral width.

Abdomen. As in ♂, but pile very short.

Material examined. ANGOLA: 1 ♂ (holotype), R. Curoca, 7 mls NE P. Alexandre, 25–26.ii.1972, Southern African Exp (BMNH [1972–1]); 1 ♀ (paratype), R. Giraúl, 10 mls NE Mocamedes, 27–29.ii.1972, Southern African Exp (BMNH [1972–1]).

Distribution. Only known from the extreme south-western part of Angola.

Acathrito namibiensis sp. n.

Figs 10, 12

Etymology. Named after the country of Namibia.

Description, ♂.

Total length. About 5,7 mm.

Head. Ratio of height:width in frontal view about 50:60. Eyes touching on frons for a distance about 3 times height of ocellar triangle. Facets on part of eyes above level of antennal bases strongly enlarged (even more than in *angolensis*), but area with enlarged facets hardly elevated. Frontal triangle hardly raised in profile. Whole head black, covered with sparse greyish tomentum, but extreme upper corner of frontal triangle shiny. Pile on frons long and black; hairs longer than scape and distributed to below antennal bases. Pile on occiput and genae black. Ratio of antennal length:depth of head 18:34. Ratios of antennal segments as follows: scape 7:5, pedicellus 3:5, first flagellomere 8:5, style 2. Antenna black, pile black. Proboscis very reduced, only discernible as a small tap. Palpi more prominent, reaching half-way to level of antennal bases.

Thorax. Mesonotal chaetation: np = 4, sa = 1, pa = 1, dc = 1, sc = 1. Whole thorax including scutellum black and rather shiny, on disc a thin brown-grey and indistinctly striped tomentum. Thoracic pile entirely black, hairs on disc longer than half length of dorsocentral setae.

Wings. Proximal section of M_1 forms a strong curve. M_2 short, only reaching half-way from discal cell to wing-margin. CuA_1+M_3 reaches wing-margin. Uniform grey-brown. Halter brown-black.

Legs. Entirely black. Fore and mid femora without anteroventral setae, only with a moderately long blackish pile on posterior surface. Hind femur with 4 rather strong anteroventral setae. Fore tibia normal.

Abdomen. Black and shiny, only slightly dulled by brownish tomentum. Segments 2 and 3, or 2–4, with dirty whitish hindmargins. Pile entirely black and moderately long. Terminalia not dissected.

♀.

Total length. 5,5–6,3 mm.

Head (Fig. 12). Ratio of height:width in frontal view about 50:65. Frons wider than in *angolensis*, width at anterior ocellus about 0,50 times distance between vertex and antennal bases. Lower frons distinctly raised in profile. Whole lower half of frons filled by a shiny black (yet wrinkled) rectangular callus reaching from eye-margin to eye-margin, and laterally carrying small tomentose triangular areas. Like *angolensis* callus with extension along mid-line to anterior ocellus. Tomentum lateral to extension weak, and areas lateral to ocellar triangle shiny black. Frontal pile short, black and richer than in *angolensis*. Head otherwise white-grey tomentose. Pile on occiput and genae mostly dark. Antenna and proboscis as in ♂, but pile of scape distinctly shorter.

Thorax. Chaetation as in ♂, but an additional pair of much shorter dc setae just in front of the usual strong pair. Disc of mesonotum indistinctly striped (as in ♂), but blackish pile much shorter. Pleural pile dark.

Wings and legs. As in ♂, but fore tibia incrassate (as in *angolensis*), tibial width equalling femoral width (Fig. 10).

Abdomen. Black and shiny; a narrow whitish hindmargin on segment 2; pile short and black.

Material examined. NAMIBIA: 2 ♂ 2 ♀ (holotype ♂ and paratypes), 50 km NW of Karasburg (2718DA) in Karasburg mountains, 28.viii.1983, J. Londt & B. Stuckenberg (NM, ZMC).

Distribution. Known only from the type-locality in southern Namibia.

Acathrito kroeberi (Lindner, 1955) & *A. lindneri* Lyneborg, 1983

Essential diagnostic characters for this eastern species-group are as follows: a. Head (Fig. 7) comparatively lower. b. Upper facets in ♂ less enlarged. c. Area of enlarged facets in ♂ not elevated; d. Only 3 notopleurals; e. $CuA_1 + M_3$ abbreviated (Fig. 2); f. Fore tibia of ♀ normal; g. Hind femur without anteroventral setae.

A. kroeberi has so far been recorded from Mombasa (Kenya) and Dar-es-Salaam (Tanzania), cf. Lindner (1955 1962), as the syntypic ♂ from Sanya between Kilimandjaro and Meru belongs to *lindneri*. The following new record from MOZAMBIQUE: 2 ♂, Chinde, Zambezi River Delta, 5.xi.1957, P. J. Usher (NM), indicates that *kroeberi* has a more extensive distribution along the oceanic beaches of eastern Africa.

A. lindneri is probably confined to inland localities. Apart from Sanya mentioned above, it is only known from the Tsavo National Park in Kenya. This species is certainly more widely distributed, as it is here recorded from SOUTH AFRICA: *Natal:* 1 ♂, 20 mi. S. Ndumu Game Reserve, 29.xi.1971, Irwin (NM).

LIST OF DEPOSITORIES

BMNH = British Museum (Natural History), London, England.
NM = Natal Museum, Pietermaritzburg, South Africa.
ZMC = Zoological Museum, Copenhagen, Denmark.

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